WHAT IS CLAIMED IS:

1. Isolated nucleic acid having at least 80% nucleic acid sequence identity to a nucleotide sequence that encodes an amino acid sequence comprising the amino acid sequence shown in Figure 2 (SEQ ID NO:2).

2. Isolated nucleic acid having at least 80% nucleic acid sequence identity to a nucleotide sequence comprising the nucleotide sequence shown in Figure 1 (SEQ ID NO:1).

3. Isolated nucleic acid having at least 80% nucleic acid sequence identity to a nucleotide sequence comprising the full-length coding sequence of the nucleotide sequence shown in Figure 1 (SEQ ID NO:1).

4. Isolated nucleic acid having at least 80% nucleic acid sequence identity to the full-length coding sequence of the DNA deposited under the ATCC accession number PTA-20 deposited with the ATCC on May 4, 1999.

5. A vector comprising the nucleic acid of Claim 1.

6. The vector of Claim 5 operably linked to control sequences recognized by a host cell transformed with the vector.

7. A host cell comprising the vector of Claim 5.

8. The host cell of Claim 7, wherein said cell is a CHO cell, a yeast cell or an *E. Coli* bacterium.

9. A process for producing a PRO4425 polypeptides comprising culturing the host cell of Claim 7 under conditions suitable for expression of said PRO4425 polypeptide and recovering said PRO4425 polypeptide from the cell culture.

10. An isolated polypeptide having at least 80% amino acid sequence identity to an amino acid sequence comprising the amino acid sequence shown in Figure 2 (SEQ ID NO:2).

11. An isolated polypeptide having at least 80% amino acid sequence identity to an amino acid sequence encoded by the full-length coding sequence of the DNA deposited under the ATCC accession number PTA-20 deposited with the ATCC on May 4, 1999.

12. A chimeric molecule comprising a polypeptide according to Claim 10 fused to a heterologous amino acid sequence.

13. The chimeric molecule of Claim 12, wherein said heterologous amino acid sequence is an epitope tag sequence.

14. The chimeric molecule of Claim 12, wherein said heterologous amino acid sequence is a Fc region of an immunoglobulin.

15. An antibody which specifically binds to a polypeptide according to Claim 10.

16. The antibody of Claim 15, wherein said antibody is a monoclonal antibody, a humanized antibody or a single-chain antibody.

17. Isolated nucleic acid having at least 80% nucleic acid sequence identity to:

(a) a nucleotide sequence encoding the polypeptide shown in Figure 2 (SEQ ID NO:2), lacking its associated signal peptide;

(b) a nucleotide sequence encoding an extracellular domain of the polypeptide shown in Figure 2 (SEQ ID NO:2), with its associated signal peptide; or

(c) a nucleotide sequence encoding an extracellular domain of the polypeptide shown in Figure 2 (SEQ ID NO:2), lacking its associated signal peptide.

18. An isolated polypeptide having at least 80% amino acid sequence identity to:

(a) an amino acid sequence of the polypeptide shown in Figure 2 (SEQ ID NO:2), lacking its associated signal peptide.

19. A method of alleviating a bone disorder in a mammal, comprising administering to said mammal, an effective amount of a PRO4425 polypeptide or an agonist thereof.

20. A method of increasing bone growth in a mammal, comprising contacting injured or developing bone in said mammal with PRO4425, thereby increasing the growth of said bone.

21. The method of Claim 19, wherein said agonist is an anti-PRO4425 polypeptide antibody.

22. The method of Claim 21 wherein said agonist is an antibody fragment.

23. The method of Claim 21 wherein the antibody fragment is a Fab fragment

24. A method of diagnosing a bone disorder in a mammal which comprises analyzing the level of expression of a gene encoding a PRO4425 polypeptide (a) in a test sample of tissue cells obtained from said mammal, and (b) in a control sample of known normal tissue cells of the same cell type, wherein a higher or lower expression level in the test sample as compared to the control sample is indicative of the presence of a bone disorder in said mammal.

25. A method of diagnosing a bone disorder in a mammal which comprises detecting the presence or absence of a PRO4425 polypeptide in a test sample of tissue cells obtained from said mammal, wherein the presence or absence of said polypeptide in said test sample is indicative of the presence of a bone disorder in said mammal.

26. An article of manufacture, comprising:

a container;

a label on the container; and

a composition comprising an active agent contained within the container; wherein the composition is effective for treating a bone disorder in a mammal, the label on the container indicates that the composition can be used for treating bone disorders, and the active agent in the composition is a PRO4425 polypeptide.